

AROMATHERAPY - SCIENCE IN SUPPORT OF MARKETING

OUTLINE

- I. Historical Background
 - A. Indirect methods of measuring human response to odors
 - B. Autonomous brain waves
 - C. Development of CNV
- II. Takasago CNV Test
 - A. Protocol
 - B. Comparison to other methods
 - C. Odor versus Drug effects - differences
 - D. Results with essential oils
 - E. Mood Adjective Check List
- III. Product Claims
- IV. New Developments
 - Aromatherapy Air Conditioning System
 - 1. VDT operator testing
 - 2. Engineering

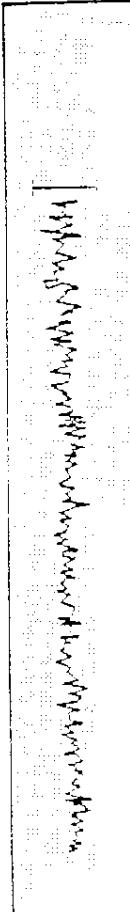
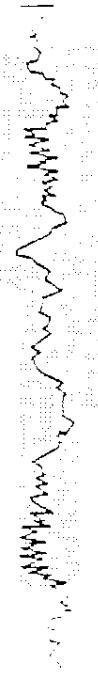
2049400280

Methods for Measuring Human Response to Odor

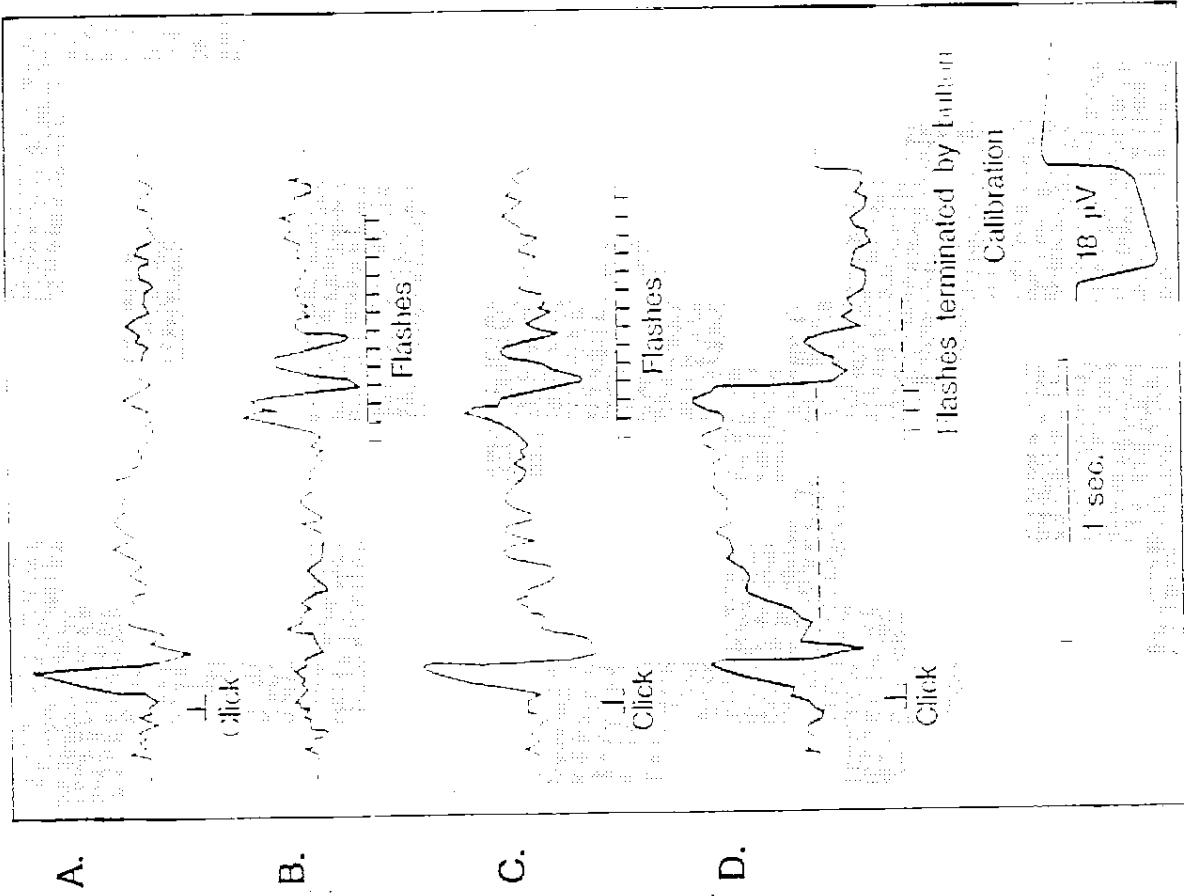
- Skin Potential Level (SPL)
- Skin Potential Response (SPR)
- Skin Temperature
- Eye Movement
- Pupil Dilation
- Pulse Wave
- Blood Pressure
- Heart Rate
- Electroencephalogram
- Contingent Negative Variation (CNV)

2049400281

Brain Wave and Level of Consciousness

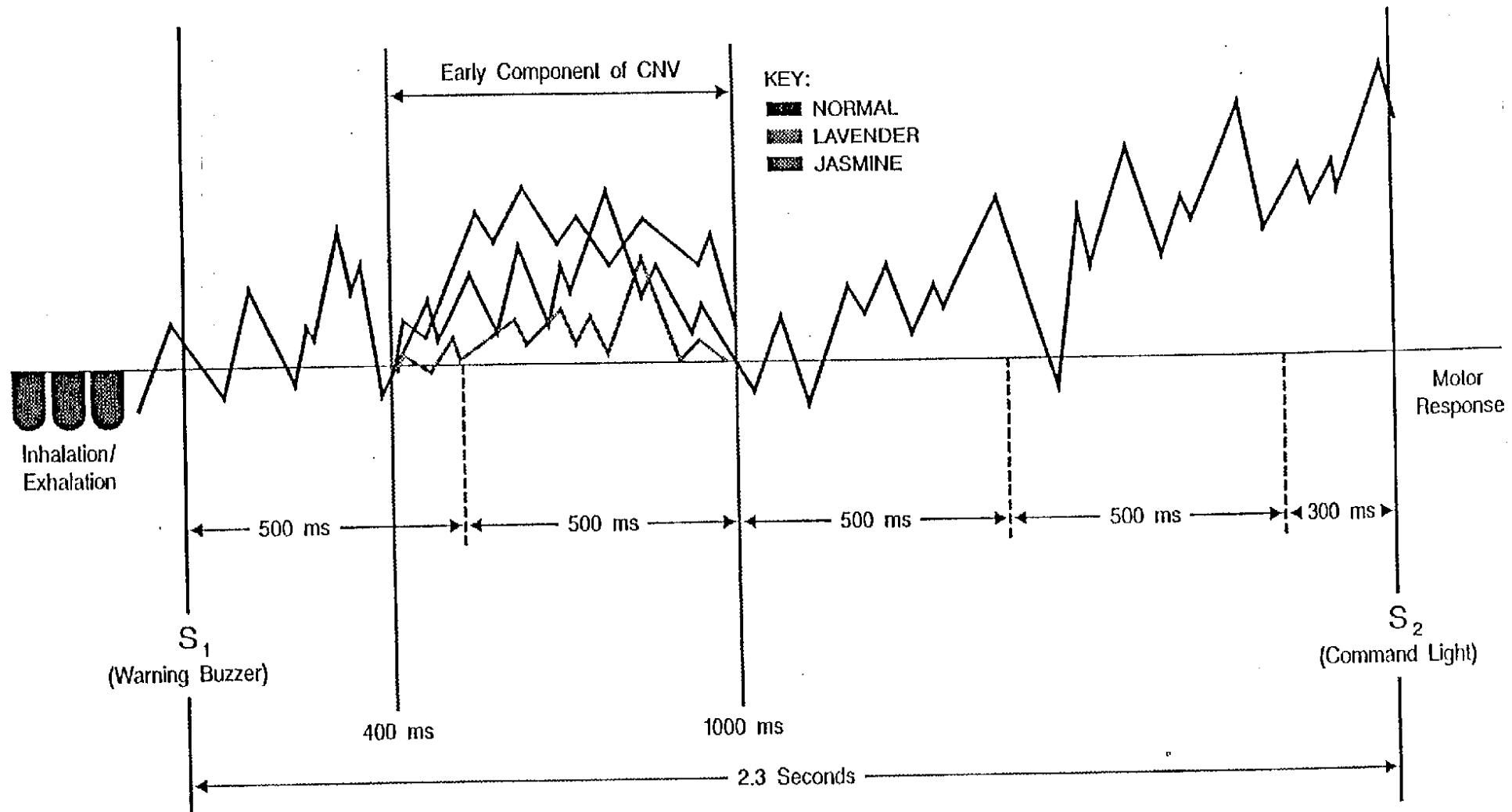
Level of Consciousness	Brain Wave	Brain Wave
Very Excited Angry, Fear	Fast Wave Beta-Wave	
State of Alertness	Beta-Wave	
Relaxed State	Alpha-Wave	
Sleepy	Theta-Wave	
Shallow Sleep	Delta-Wave	
Deep Sleep		

2049400282



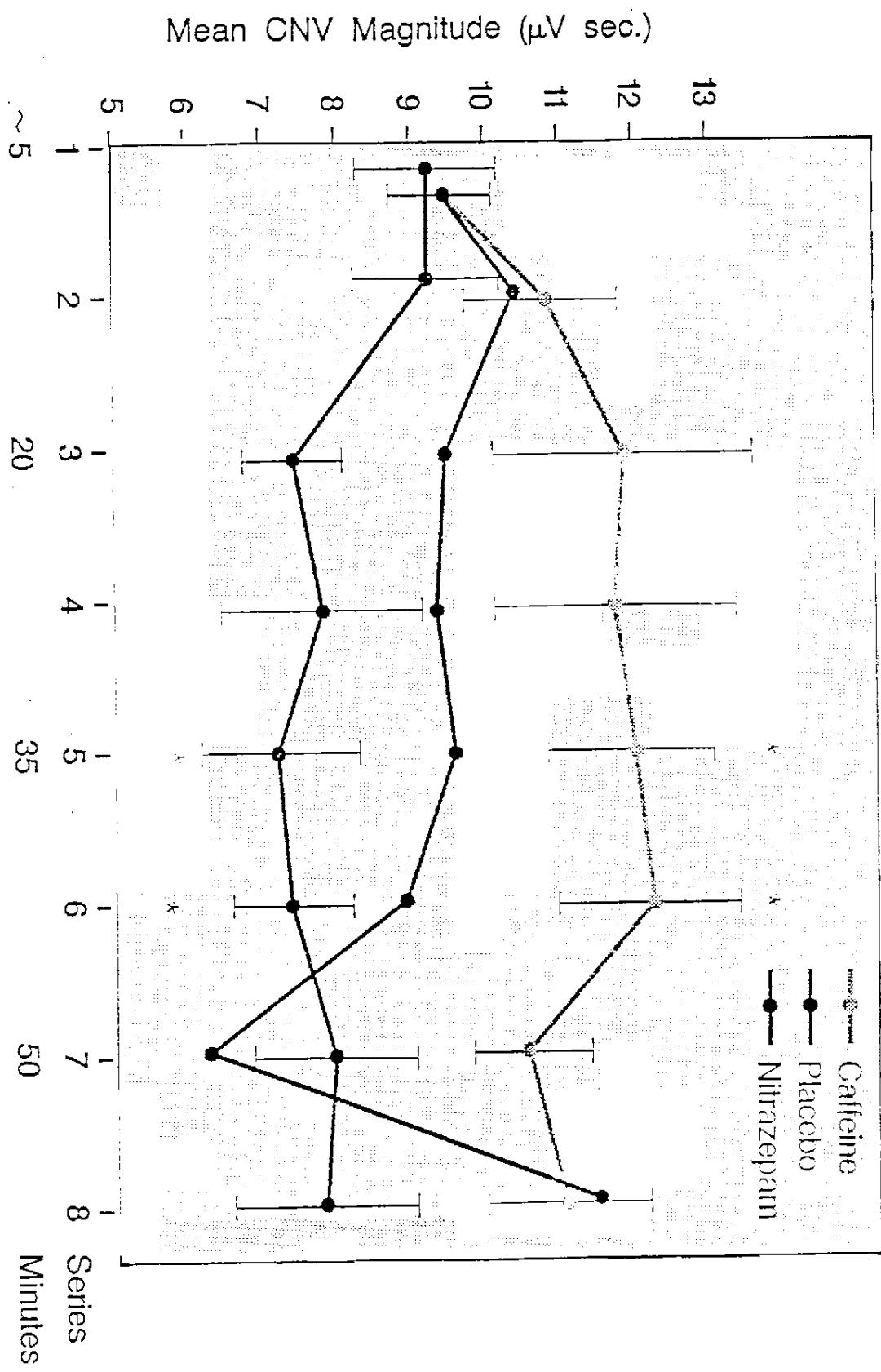
2049400283

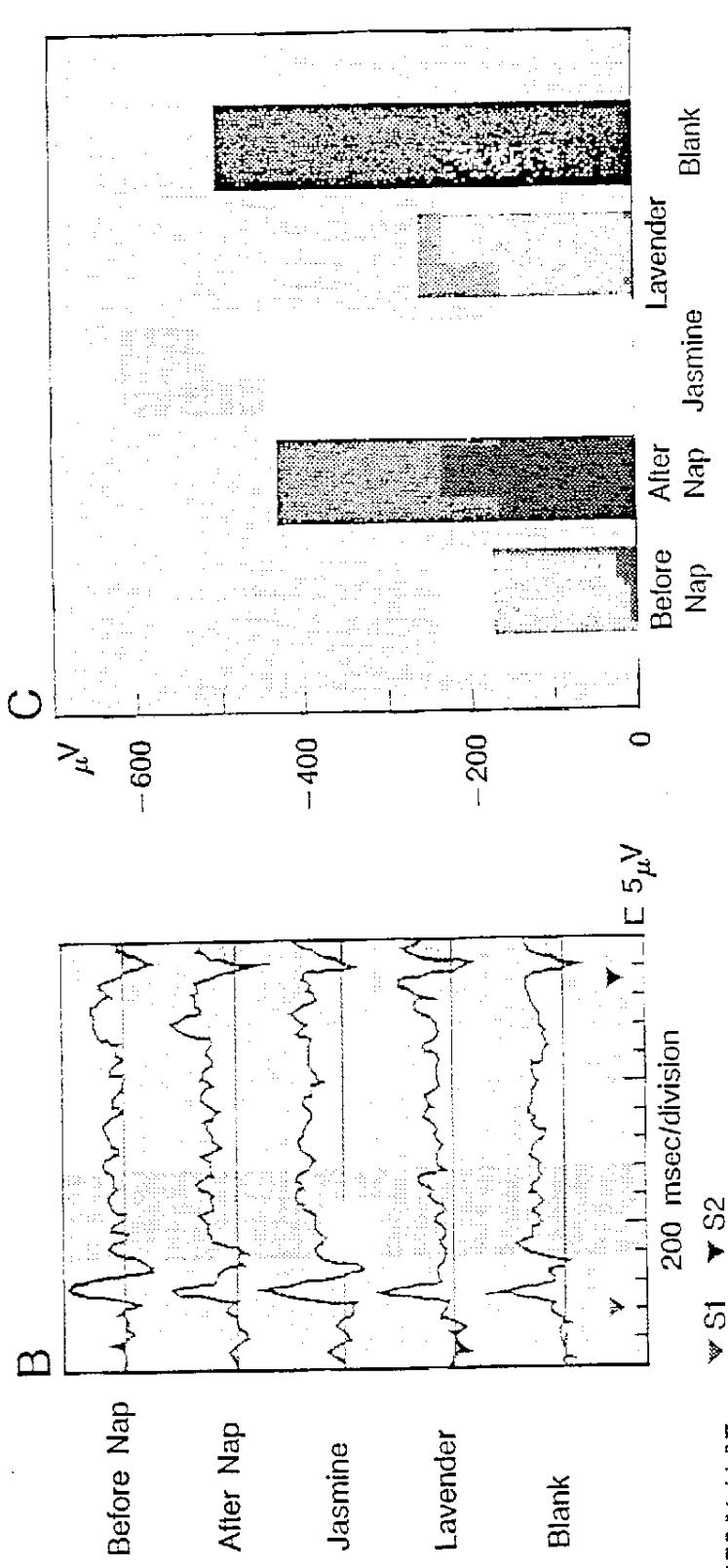
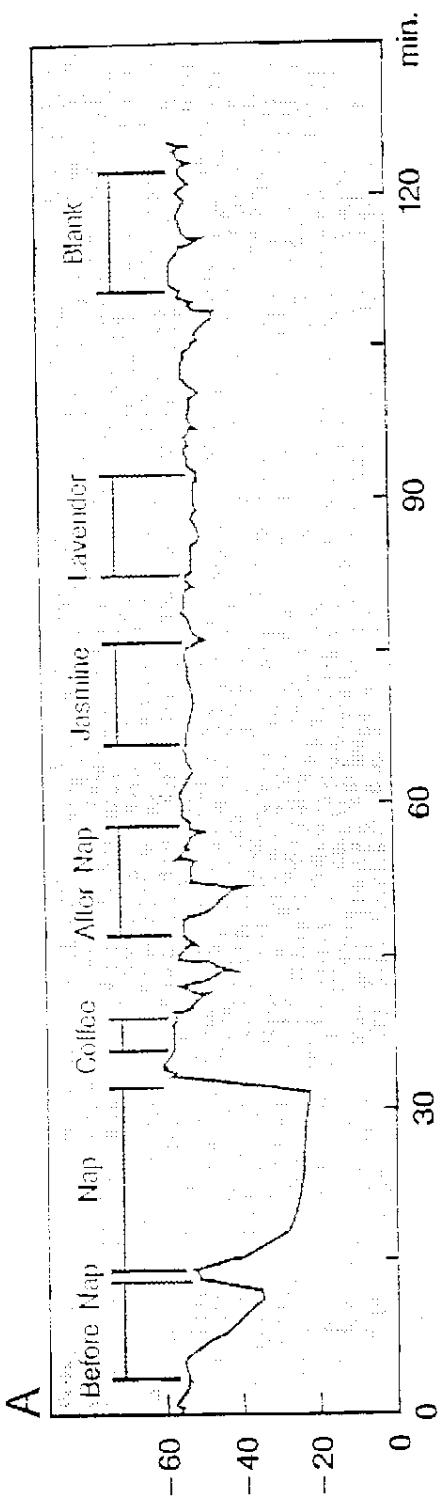
CNV Test Paradigm



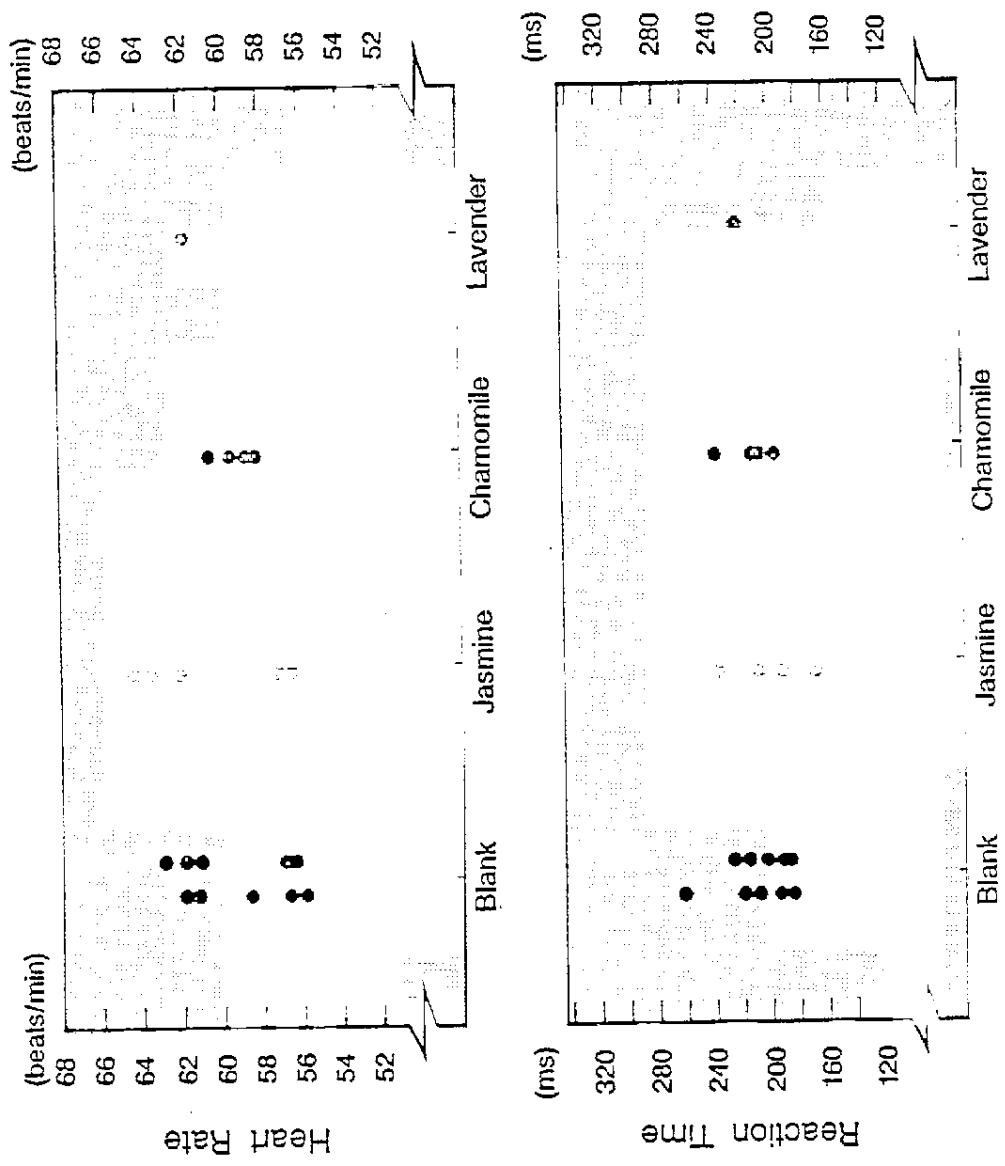
2049400284

2049400285





Effects of Essential Oils on Heart Rate and Reaction Time



2049400287

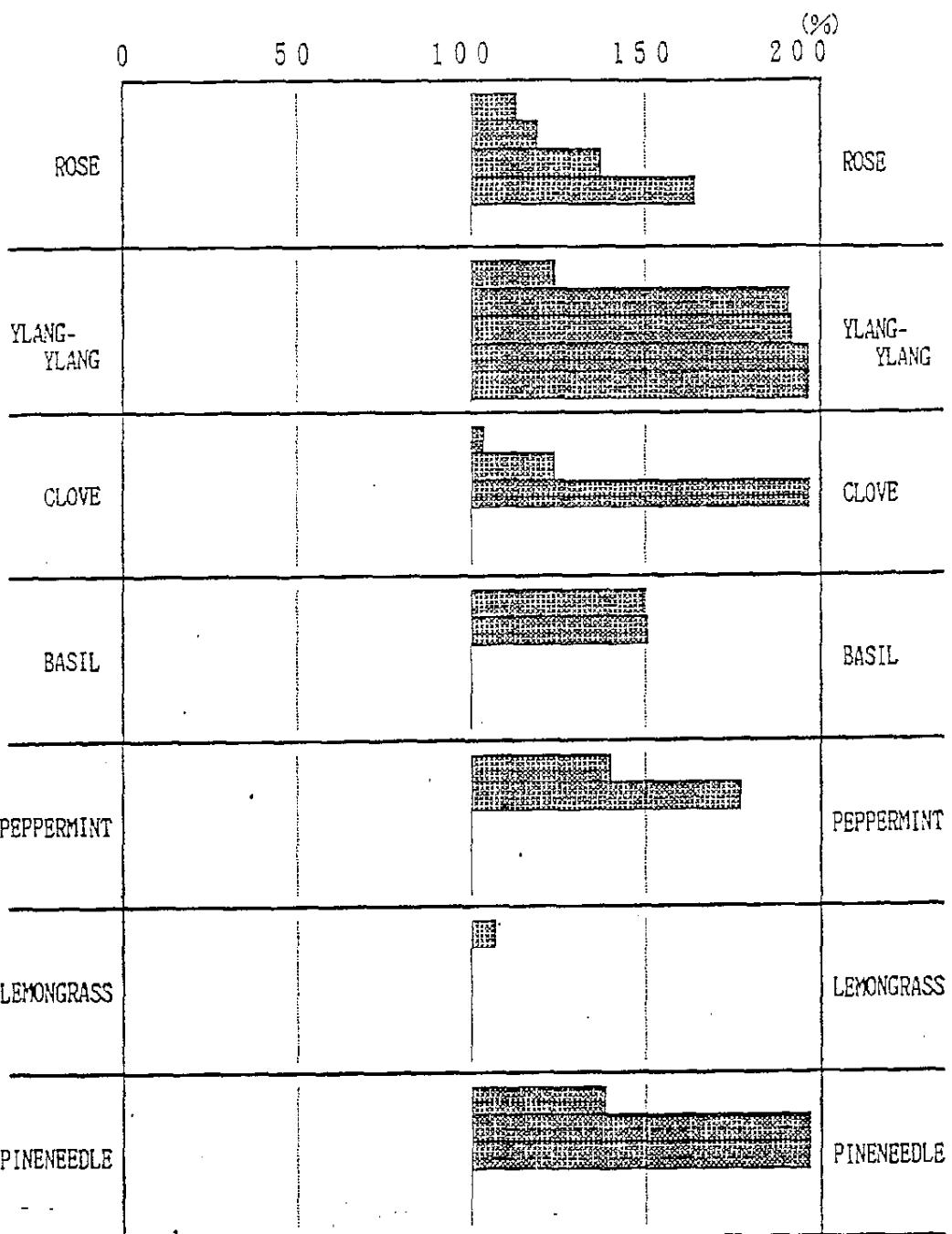
Drug Effects on CNV and Reaction Time (RT)

Drugs	CNV	RT
Depressants		
CPZ		
Nitrazepam		
NO ₂		
Alcohol		
Stimulants		
Caffeine		
Marijuana		
Ampphetamine		

Tecce et al (1975)
Ashton et al (1974)
Fenwick et al (1979)
Kopell et al (1972)

Ashton et al (1974)
Braden et al (1974)

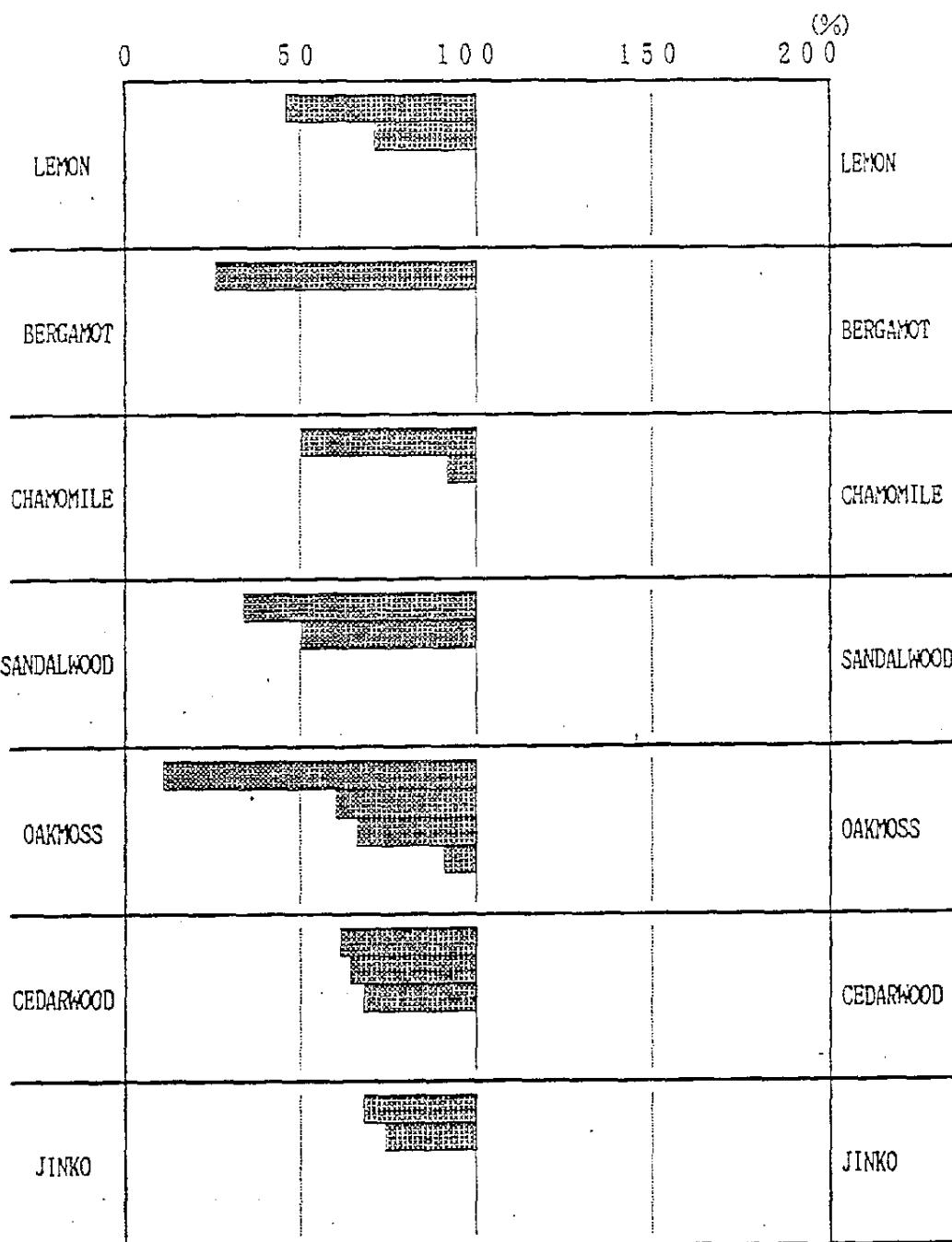
Kopell et al (1974)



The change of magnitude at the early component of CNV under the presentation of various essential oils.

Case-1; The amplitude is higher than blank
(Invigorating effect)

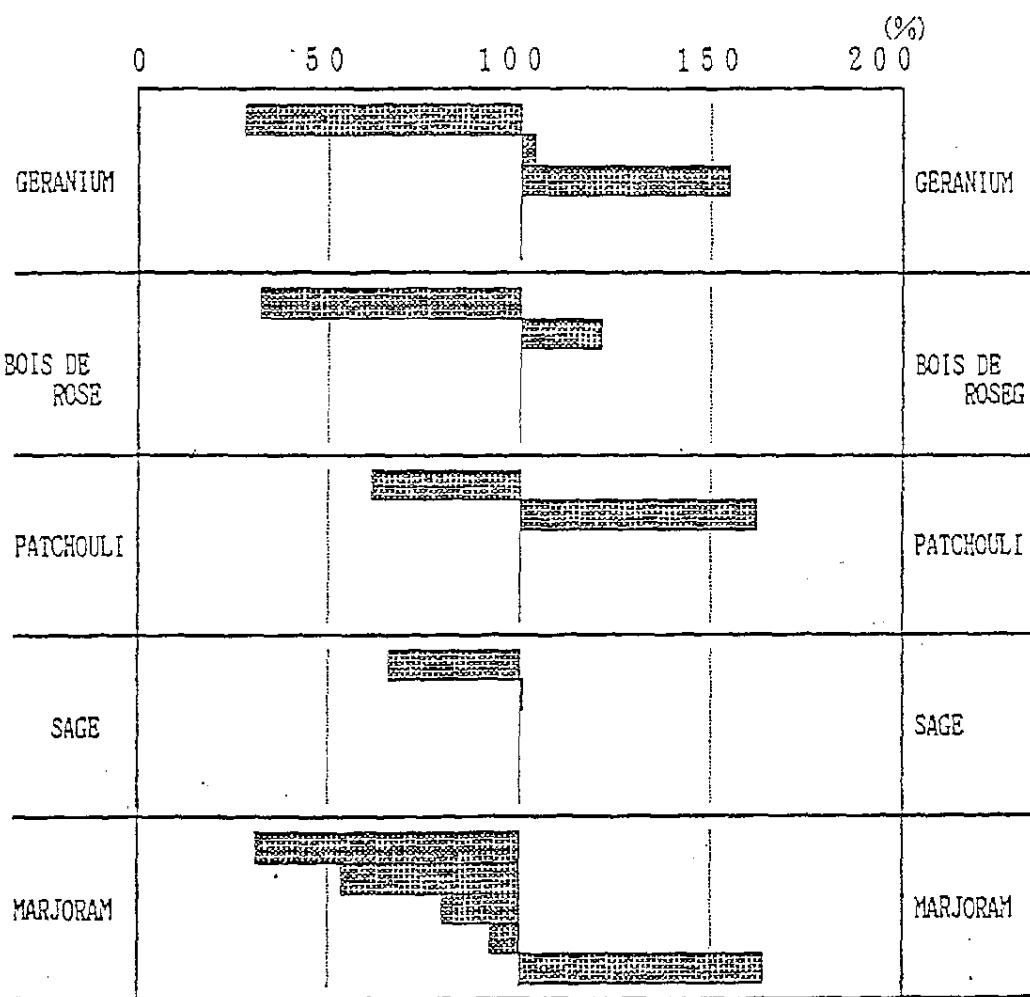
2049400289



The change of magnitude at the early component of CNV under the presentation of various essential oils.

Case-2 ; The amplitude is lower than blank
(Sedative effect)

2049400290



The change of magnitude at the early component of CNV under the presentation of various essential oils.

Case-3 ; These essential oils show indefinite effect.

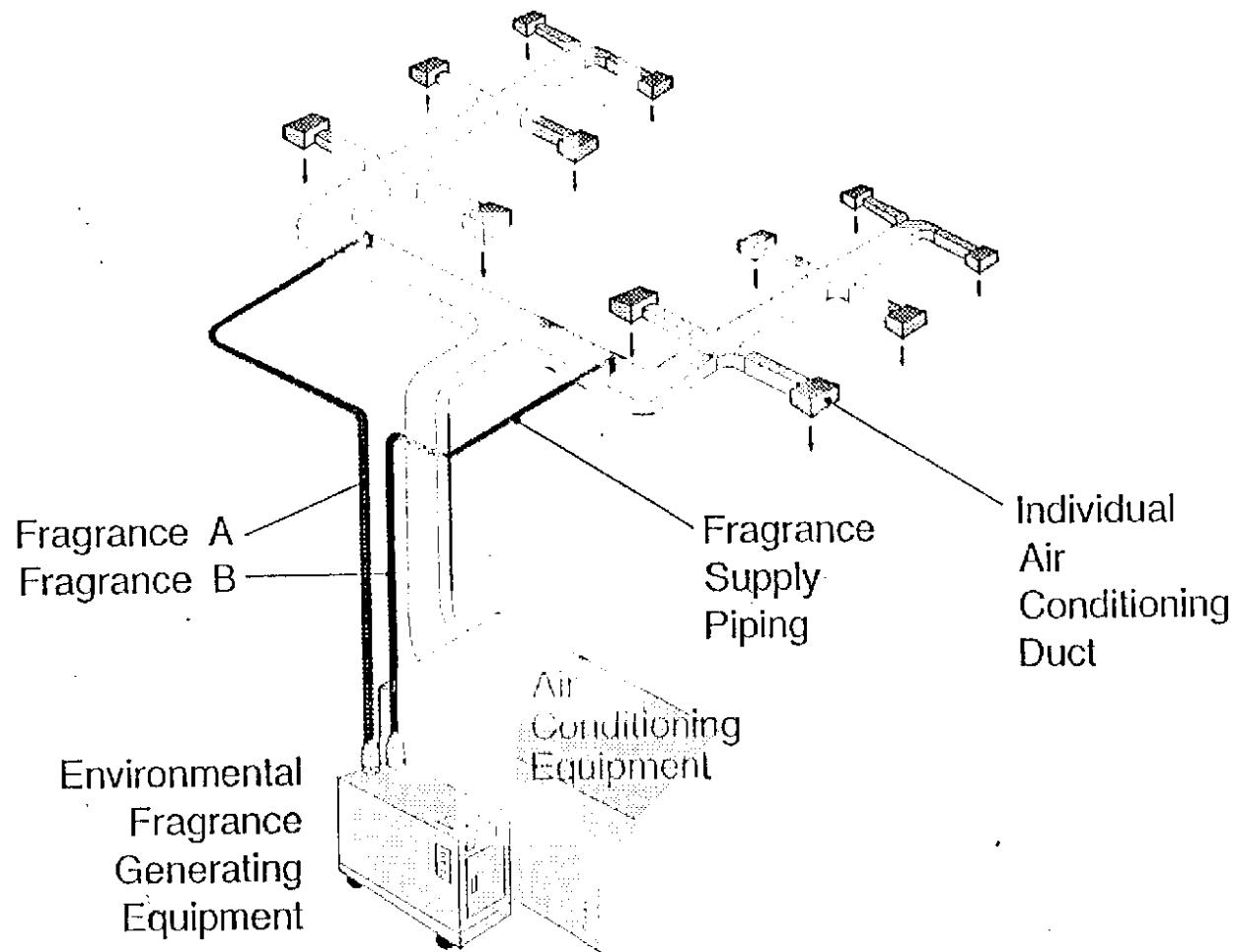
2049400291

Research – Marketing Implications

- Scientific Basis – Valid Product Difference Claims
- Differences Perceived by Consumers

2049400292

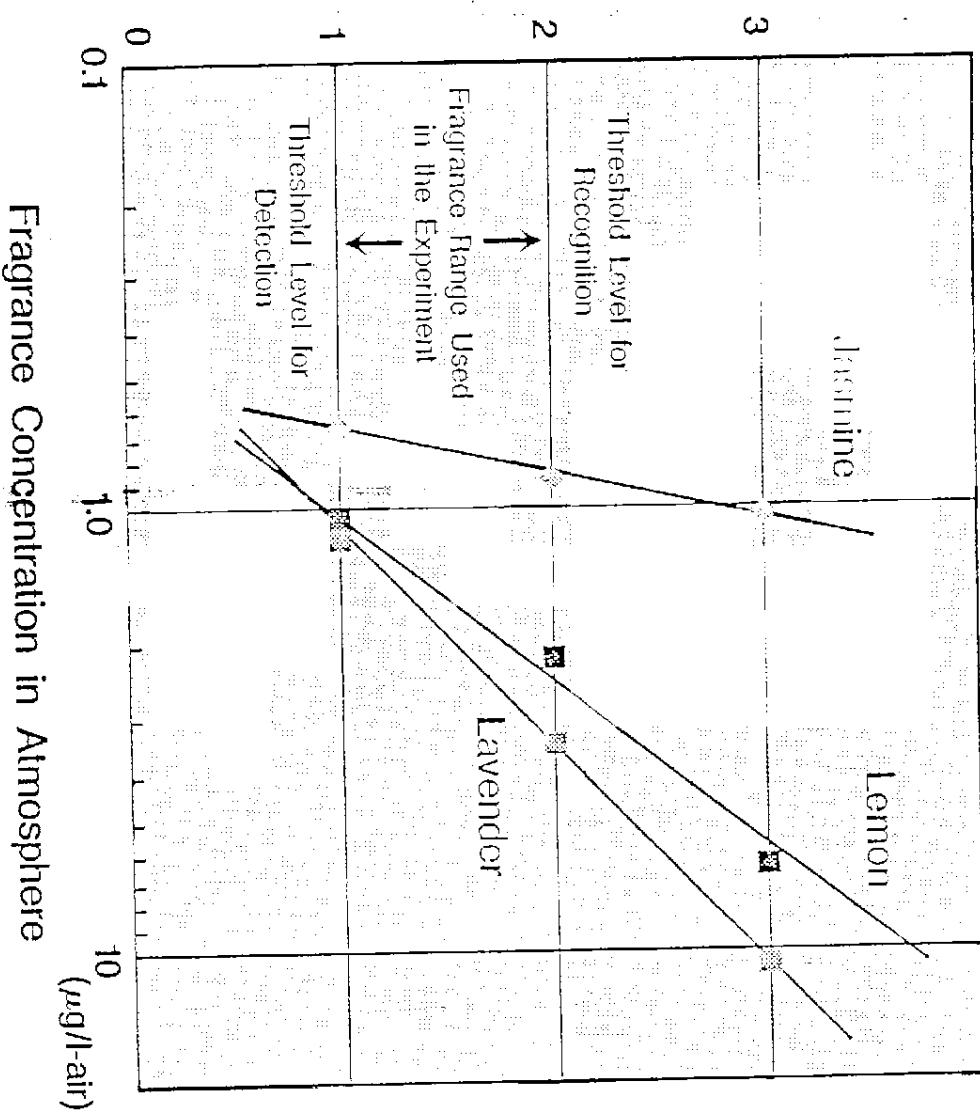
Aromatherapeutic Environmental Fragrancing System Supplying Two Fragrances



2049400293

Fragrance Concentration in Atmosphere and Threshold Level

6-Degree Scale of Scent Strength



204400294

Keypunch Speed and Error Rate in VDT Work

